REMARKS

These remarks are responsive to the Office Action dated March 23, 2007. Currently

claims 1-15 are pending with claims 1, 8, and 13 being independent. Claims 1, 2, 8 and 13 have

been amended to accommodate Examiner's objections and to expedite prosecution of this

application to allowance.

Objections

In the March 23, 2007 Office Action, the Examiner objected to claims 8-13 because

claims "8-13 recite the phrases 'operative to' or 'adapted to' which suggests or makes optional

but does not require the steps to be performed or does not limit a claim to a particular structure."

(Office Action, page 2). The Examiner is respectfully referred to MPEP 2111.04 that states:

> Claim scope is not limited by claim language that suggests or
> makes optional but does not require steps to be performed, or by
> claim language that does not limit a claim to a particular structure.
> However, examples of claim language, although not exhaustive,
> that may raise a question as to the limiting effect of the language in
> a claim are:
> (A) "adapted to" or "adapted for" clauses;
> (B) "wherein" clauses; and
> (C) "whereby" clauses.
> The determination of whether each of these clauses is a limitation
> in a claim depends on the specific facts of the case. In *Hoffer v.
> Microsoft Corp.*, 405 F.3d 1326, 1329, 74 USPQ2d 1481, 1483
> (Fed. Cir. 2005), the court held that when a "'whereby' clause
> states a condition that is material to patentability, it cannot be
> ignored in order to change the substance of the invention." Id.
> However, the court noted (*quoting Minton v. Nat'l Ass'n of
> Securities Dealers, Inc.*, 336 F.3d 1373, 1381, 67 USPQ2d 1614,
> 1620 (Fed. Cir. 2003)) that a "'whereby clause in a method claim
> is not given weight when it simply expresses the intended result of
> a process step positively recited.'" *Id.*

As suggested above, even though "operative to" and "adapted to" clauses in the claims

are not generally considered limiting, the determination as to their limitation is performed on a

8

case-by-case basis. Upon reviewing the March 23, 2007 Office Action, it appears that the

Examiner has assigned patentable weight to the language that follows the "operative to" and/or

"adapted to" clauses. As such, the Examiner made a determination that in this application these

limitations carry patentable weight regardless whether claims will be amended to positively

recite such limitations.

35 U.S.C. 112

In the March 23, 2007 Office Action, the Examiner rejected claims 1 and 13 under 35

U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and

distinctly claim the subject matter which the application regards as the invention. The Examiner

stated that certain claim limitations lack antecedent basis. (Office Action, page 3). Applicants

amended claims 1 and 13 to provide a proper antecedent basis. Thus, this rejection is now moot.

The Examiner is respectfully requested to withdraw his rejection of claims 1 and 13.

35 U.S.C. 103(a)

In the March 23, 2007 Office Action, the Examiner rejected claims 1-4, 7, 8-12, and 13-

14 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Publication No. 2004/0049513

to Yakir (hereinafter, "Yakir") in view of U.S. Patent Publication No. 2002/0055972 to

Weinman, Jr. (hereinafter, "Weinman"). In the March 23, 2007 Office Action, the Examiner

stated that Yakir discloses all elements of claim 1 except that it does not "explicitly disclose

'wherein said repository nodes store a replica of said file.'" (Office Action, page 5). The

Examiner stated that Weinman discloses this element. Applicants respectfully disagree and

traverse this rejection.

Claim 1 recites, *inter alia*, receiving, at a destination fileserver, metadata and a set of stub

files associated with the set of files; maintaining a list of repository nodes that are associated

with each file in the set of files by updating a location component in a fileserver, wherein said

repository nodes store a replica of said file; and, replacing each stub file with a full content of the

file associated with the stub file; and wherein said replacing includes receiving a client request

for a specified file in the set of files; replacing the stub file associated with the specified file with

a full content of the specified file.

As understood by Applicants, Yakir relates to techniques for moving a stub file from an

originating storage location to a destination storage location without recalling the migrated data

corresponding to the stub files. (Yakir, Abstract). Further, Yakir discloses an advanced Historical

Storage Management ("HSM") based storage system that allows shares of data to be migrated

from an originating server to a destination server. One of the drawbacks of Yakir is that it

requires that both originating and destination fileservers are present in order to migrate files. An

advantage of the preset invention is that it can perform disaster recovery operation even when the

originating server is non-operational, failed and/or non-existent. Yakir cannot perform such task.

Further, Yakir cannot replicate metadata across multiple volumes and, as such, it cannot perform

HSM-assisted disaster recovery.

Yakir moves stub files from an originating storage location to a destination storage

location without recalling migrated data corresponding to the stub file. (Yakir, para. [0009]).

Yakir's originating and destination storage locations can be on the same storage unit and

assigned to the same or different file servers. (Yakir, para. [0009]). Yakir's storage management

system ("SMS") includes information that relates to location of files that were migrated (or re-

migrated) and recalled. (Yakir, para. [0023]). The information can also include information

related to storage policies, rules for storage environment, information related to various

monitored storage units, information related to files stored in the storage environment, file

location information that includes information used to find location of migrated data. (Yakir, para. [0023]). File location information can be replicated to databases on servers. (Yakir, para. [0023]).

However, in addition to failing to disclose "wherein the repository nodes store a replica of the file", as recited in claim 1, Yakir also fails to disclose, *inter alia*, maintaining a list of repository nodes that are associated with each file in the set of files by updating a location component in a fileserver, wherein said repository nodes store a replica of said file, as recited in claim 1. In contrast, Yakir includes file location information using which Yakir's SMS can find the file. Yakir does not maintain a list of repository nodes associated with each file, where repository nodes store a replica of the file. Instead, Yakir stores "data locator information or portions thereof" in various storage locations. (Yakir, para. [0071]). The data locator information is stored in the stub file. (Yakir, para. [0071]). Clearly, this is different than maintaining a list of repository nodes that store replicas of a file. As such, Yakir fails to disclose, teach or suggest this element of claim 1.

Weinman does not cure the deficiencies of Yakir. As understood by Applicants, Weinman discloses a data dispersion method for reducing a risk of losing a file by replicating it across geographically-distant locations. (Weinman, paras. [0014]-[0016]). Upon creation of an object, Weinman mirrors the object to n-1 additional mirror sites in the network. The number of copies may change upon creation of additional copies of disasters occurring in the additional sites. (Weinman, para. [0015]). Weinman also determines whether too few or too many copies have been created and either adds or deletes copies of files. (Weinman, para. [0015]). This is different than, *inter alia*, maintaining a list of repository nodes that are associated with each file

11

in the set of files by updating a location component in a fileserver, wherein said repository nodes

store a replica of said file, as recited in claim 1.

Improper to Combine References

Contrary to the Examiner's suggestion (Office Action, page 5), there is no motivation or

suggestion to combine Yakir and Weinman to produce the claimed invention. Yakir relates to

migration of stub files from origination file server to the destination file server. Whereas,

Weinman discloses a system for creating additional copies of files in geographically distant

locations. Additionally, the technological arts disclosed in Yakir and Weinman are different.

Specifically, the technology disclosed in Yakir is in class 707 ("Data Processing: Database and

File Management or Data Structures") and subclass 100 ("Database Schema or Data Structure").

In contrast, the technology disclosed in Weinman is in class 709 ("Electrical Computer and

Digital Processing Systems: Multicomputer Data Transferring") and subclass 203 ("Distributed

Data Processing: Client/Server"). Thus, the two references and their respective technologies

significantly differ from each other and provide no basis as to why they would be combined.

Hence, it is improper to combine Yakir and Weinman without some disclosed motivation other

than the present application. See, MPEP 2143.01:

> "There are three possible sources for a motivation to combine
> references: the nature of the problem to be solved, the teachings of
> the prior art, and the knowledge of persons of ordinary skill in the
> art." *In re Rouffet*, 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1457-
> 58 (Fed. Cir. 1998) (The combination of the references taught
> every element of the claimed invention, however without a
> motivation to combine, a rejection based on a prima facie case of
> obvious was held improper.).

Even if one were to combine Yakir and Weinman, which would be improper, the present

invention is not realized. Yakir relates to techniques for moving a stub file from an originating

storage location to a destination storage location, where such techniques use data-locator

12

information stored in the stub file. Weinman's system creates multiple copies of actual files in various geographically-distant locations. The combination of Yakir and Weinman relates to a system for moving stub files from an originating storage location to a destination storage location and creating multiple copies of files in different locations. However, the combination of Yakir and Weinman fails to disclose, *inter alia*, maintaining a list of repository nodes that are associated with each file in the set of files by updating a location component in a fileserver, wherein said repository nodes store a replica of said file, as recited in claim 1.

Additionally, an advantage of the present invention is that it allows for an accelerated fileserver disaster recovery process that can be used in any of the following exemplary instances:

- when a fileserver fails, and the recovery server is at the same site as the failed fileserver;

- when a fileserver is lost during a site disaster, and a remote fileserver is used as a recovery fileserver; and/or,

- when one or more shares on a fileserver need to be migrated to another fileserver in order to load-balance file access/performance across multiple file servers.

The present invention includes file servers that incorporate HSM technology in order to retain only the most active files on the more expensive disk storage within the file server tier of storage. In the present invention, a repository can be made up of servers that have lower cost disk storage technology. These repository servers maintain all of the backup history for all of the files created or modified on the file server(s). The latest historical version of the backup data in the repository for each fileserver file can also be leveraged to represent the staged-out copy of a file that has been deemed inactive by the fileservers' HSM policy. Inactive files on the file server can be "stubbed out" to reduce storage capacity consumption on the more costly file server disk subsystem, and these stub files can be pointed to the latest version of that file's backup data.

The present invention integrates file servers with integrated backup and HSM and enables a unique operational feature that is not possible with simple file servers, or HSM-only or backup-only systems. When a fileserver has completely failed (unrecoverable hardware failure or site disaster), the contents of that entire fileserver can be recreated from the backup data in the local or remote repository. In addition, because the file server incorporates HSM, the recovery of data to the recovery file server can be accelerated using an exemplary two-stage recovery operation:

Stage 1: re-populate the recovery file server with just HSM stub files. This reduces file server rebuild times from more than a day to less than an hour.

Stage 2: allow these stub files that are requested by users to be staged-in from the repository at high priority. In the absence of requests for files from users, all of the files that were cached in the fileserver that failed are re-cached on the recovery file server as a background task.

In contrast, Yakir does not address fileserver or site disaster recovery issues. Yakir migrates data from an operational originating server to an operational destination server for the purpose of load balancing. An advantage of the present invention is its use of HSM to accelerate the recreation of the content from a completely non-operational server (server failure, site disaster recovery) to a surviving server. As such, Yakir does not address the same issues as the present invention.

Further, Yakir does not stage-in content during a file server migration, thus, after server migration, the destination server has all of its data stubbed out. This is undesirable from an end-user access-time perspective, because access to each file is a time-consuming stage-in process. In contrast, the present invention, after disaster recovery, allows end-users to access full data, originally present at a failed originating server, at a surviving destination server. The present invention is able to track a cached state of files at the originating server and stages-in these files

14

automatically at the destination server to accelerate future access to frequently used files by end-users. This automatic reloading of cached data is not disclosed in either Yakir or Weinman.

Further, Weinman's system is a distributed web content management system that distributes copies geographically in order to provide high resiliency to site disaster. Whereas, the present invention relates to a primary storage system that is accessed directly by end-users that create, modify and delete files over time. In Weinman, end-users cannot access these files directly. Weinman is a simple replication of a current content. In contrast, the present invention provides complete historical backup of data.

As such, claim 1 is not rendered obvious by the combination of Yakir and Weinman. Thus, this rejection is respectfully traversed. The Examiner is requested to reconsider and withdraw his rejection of claim 1.

Claims 8 and 13 are patentable over the Yakir and Weinman combination for at least the reasons stated above with regard to claim 1. As such, the rejection of claims 8 and 13 is respectfully traversed. The Examiner is requested to reconsider and withdraw his rejection of claims 8 and 13.

Claims 2-7, 9-12 and 14-15 are dependent on the independent claims 1, 8, and 13, respectively. As such, claims 2-7, 9-12 and 14-15 are patentable over the combination of Yakir and Weinman for at least the reasons stated above with respect to claim 1. Hence, the rejection of claims 2-7, 9-12 and 14-15 is respectfully traversed. The Examiner is requested to reconsider and withdraw his rejection of claims 2-7, 9-12 and 14-15.

In the March 23, 2007 Office Action, the Examiner rejected claims 5, 6, and 15 under 35 U.S.C. 103(a) as being unpatentable over Yakir, Weinman, and U.S. Patent No. 5,564,037 to Lam (hereinafter, "Lam"). This rejection is respectfully traversed.

Claims 5, 6, and 15 are dependent on the independent claims 1 and 13. As stated above, these claims are patentable over the combination of Yakir and Weinman for at least the reasons stated above with regard to claim 1. Lam does not cure the deficiencies of the combination of Yakir and Weinman. Lam relates to staging out files that have not been accessed in some time from primary storage to secondary and tertiary storage. However, Lam fails to disclose, teach or suggest, *inter alia*, maintaining a list of repository nodes that are associated with each file in the set of files by updating a location component in a fileserver, wherein said repository nodes store a replica of said file, as recited in claim 1. As such, the combination of Yakir, Weinman, and Lam fails to render claims 5, 6, and 15 obvious. Thus, this rejection is respectfully traversed. The Examiner is requested to reconsider and withdraw his rejection of claims 5, 6, and 15.

No new matter has been added. The claims currently presented are proper and definite. Allowance is accordingly in order and respectfully requested. However, should the Examiner deem that further clarification of the record is in order, we invite a telephone call to the Applicants' undersigned attorney to expedite further processing of the application to allowance.

Applicants believe that no additional fees are due with the filing of this Amendment.

However, if any additional fees are required or if any funds are due, the USPTO is authorized to

charge or credit Deposit Account Number: 50-0311, Customer Number: 35437, Reference

Number: 25452-015.

Respectfully submitted,

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17